

January 30, 2017

Via ECFS

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Joint Proposal for Mobility Fund Phase II*
WT Docket No. 10-208; WC Docket No. 10-90

Dear Ms. Dortch:

This filing is submitted jointly by Atlantic Tele-Network, Inc., on behalf of itself and its subsidiaries NTUA Wireless, LLC, Choice Wireless, LLC; and Commnet Wireless, LLC (collectively “**ATN**”); AT&T Services, Inc. (“**AT&T**”); and Buffalo-Lake Erie Wireless Systems Co. (“**Blue Wireless**”).

Although we do not agree on every aspect of how Mobility Fund Phase II should be implemented, we share a common goal of providing constructive input towards the adoption of Mobility Fund Phase II without further delay. Collectively, we have experience participating in Connect America Fund (“CAF”) Phases I and II and Mobility Fund Phase I. We all believe that “[m]obile broadband is especially crucial for rural America” and that “it is time for the FCC to get moving with the second phase of the Mobility Fund.”¹

In the attached, we present a joint proposal intended to advance these goals. In broad outline, we propose that the Commission adopt a Mobility Fund Phase II that:

- Targets Geographic Areas without LTE to ensure that subsidies are not provided in areas where private investment is doing the job;
- Sets out a clear, efficient, and objective framework to improve available coverage data in order to identify such areas;
- Establishes objective, technologically neutral performance standards that will ensure that rural Americans get service comparable to that available in urban areas. To do so, the proposal relies on lessons from the Commission’s implementation of CAF programs;
- Sizes the fund appropriately to solve the problem, and presents an estimate of the range of costs necessary to get the job done;
- Ensures that auction winners know all of their obligations in advance of auction and are accountable for compliance.

¹ Remarks of FCC Commissioner Ajit Pai, “A Digital Empowerment Agenda” (Sept. 13, 2016) at 4-5.

The proposal suggests a framework based on geographic area (unserved square miles), but ATN maintains its position that the program should be based instead on unserved road miles.² Otherwise, the three of us agree on all elements of the attached proposal.

This proposal represents the views of a large provider, a mid-sized provider, and a small provider with a common interest in ensuring high-quality mobile service in rural America. We believe that it is possible to establish a workable framework for Mobility Fund Phase II in the near term and perfect the coverage data to proceed with an auction without further delay. We urge the Commission to move ahead with Mobility Fund Phase II, and look forward to continuing to work constructively with the Commission – collectively and individually – towards that end.

Sincerely,

/s/ Douglas J. Minster
Douglas J. Minster
Vice President, Government and Regulatory Affairs
Atlantic Tele-Network, Inc.

/s/ Mary L. Henze
Mary L. Henze
Assistant Vice President, Federal Regulatory
AT&T Services, Inc.

/s/ Brian Gelfand
Brian Gelfand
President
Buffalo-Lake Erie Wireless Systems Co.

Attachment

cc (w/ attachment):	Hon. Ajit Pai	Kris Monteith
	Hon. Mignon Clyburn	Ryan Palmer
	Hon. Michael O’Rielly	Alexander Minard
	Jay Schwarz	Steve Wong
	Claude Aiken	
	Amy Bender	

² See, e.g., Letter from Wade McGill, ATN, to Marlene Dortch, FCC, WT Docket No. 10-208; WC Docket No. 10-90 (filed Dec. 15, 2016).

Designing an Effective Mobility Fund Phase II

Key Elements:

- Use lessons from CAF to implement a successful MF II
- Size the fund to solve the problem
- Multi-round reverse auction
- Improve available coverage data with an efficient “data improvement process”
- All obligations of winners known in advance of auction
- Clear and efficient compliance

A Detailed Proposal:

- A. Target Geographic Areas without LTE
- B. Estimating the Cost
- C. Coverage Data Improvement Process
- D. Detailed Specifications Promote Fairness & Efficiency
- E. MF II Service & Deployment Obligations

A. Target Geographic Areas without LTE

1. MF II support should be targeted to the geographic areas of the country where LTE mobile wireless service is not yet available as determined “on the ground.”
 - The practicality of providing service on specific Federal/State Government lands should be considered prior to including them in the auction.
 - Competitive auction will promote efficient use of funding
2. For purposes of determining MF II eligible CBs or partial CBs, LTE service would be defined as mobile wireless service with a minimum average outdoor download speed of at least 5Mbps. For winners of MF II support, service obligations would require a minimum average outdoor download speed of at least 5Mbps in the deployed eligible area of the census tract.
 - We note that the industry standards body 3GPP recognizes speeds of 1Mbps at the cell edge as LTE.
 - The speed standards set for MF II should reflect the challenges of deploying in diverse rural terrain and the inherent variability of wireless service.
3. Support would be used to provide the required level of LTE service to an FCC-specified percent of the LTE-uncovered square mileage (identified by census blocks or partial census blocks) within a census tract.
4. MF II winners would receive ten years of funding and have six years to deploy qualifying LTE service to XX%¹ of the total area in square miles of the LTE-uncovered area within the census tract pursuant to 54.310(c)
5. The auction itself should be modeled on the format already adopted for the CAF II auction: a) MF II support should be distributed via a multi-round reverse auction, where the smallest bidding unit is a census tract and bids are placed as “\$ of support per uncovered square mile;” and, b) Winners should be selected by ranking bids from lowest to highest “\$ of support per uncovered square mile” and awarded funding by project until the budget is exhausted.
6. This proposal calls for Mobility Fund II to be designed based on Geographic Area. ATN maintains its advocacy for use of road miles as the bidding unit instead of geographic area.²
 - Road Miles: limited by data availability
 - POPs: focuses coverage in population zones
 - Geographic area would provide service to roads, POPs, farm land, and other important areas within a census tract as part of a logical network build.

¹ The available budget would determine what percent coverage requirement is feasible. The same percent would apply to all participants and census tracts.

² See, e.g., Letter from Wade McGill, ATN, to Marlene Dortch, FCC, WT Docket No. 10-208; WC Docket No. 10-90 (filed Dec. 15, 2016).

B. Estimating the Cost

1. The MF II budget set in 2011 does not reflect the size of today's problem or the cost of current technology.
 - Areas without LTE typically lack readily available fiber
 - Deploying/maintaining fiber in remote areas is difficult/costly
2. We modeled the potential nationwide cost of deploying an LTE capable network using 2015 coverage data for all carriers, a detailed nationwide tower analysis, and high-level cost estimates:
 - a. 2015 Form 477 Data shows 552,722 square miles without LTE³
 - b. Each tower can cover 20-70 square miles depending on terrain
 - c. Tower analysis of uncovered areas suggest that 58% of towers required to provide coverage would be upgrades to existing sites while 42% would be totally new tower construction.
 - d. Estimated cost per tower: Upgrade = \$300,000; New Site = \$800,000.

High Estimate: assumes that the LTE-uncovered CBs or partial CBs are scattered across the census tract and thus could only be served by a network covering the entire census tract (36,703 towers).

Low Estimate: assumes that the LTE-uncovered CBs or partial CBs in the census tract are contiguous and thus can be served with a minimum number of sites (16,739 towers).

Estimated Cost to Deploy LTE *Annual Cost for 10-year Program*

% Eligible Square Miles to be Covered	High Estimate (Annual Cost \$M)	Low Estimate (Annual Cost \$M)
10%	\$39	\$42
20%	\$83	\$83
30%	\$135	\$129
40%	\$193	\$172
50%	\$258	\$217
60%	\$336	\$263
70%	\$431	\$311
80%	\$550	\$361
90%	\$732	\$424
100%	\$1868	\$852

³ For this analysis LTE coverage is defined as reported in the Form 477.

C. Coverage Data Improvement Process

To verify coverage and determine the areas that are eligible for MF II the FCC should run a Data Improvement Process modeled after the CAF II “challenge process.” This process should include the following elements:

1. The FCC’s release of the initial list of eligible areas/CBs/tracts would start the data improvement process. Interested parties would have 60 days to submit specific FCC-defined evidence that supports the need for an adjustment to the Form 477 coverage data (see Section D, below). A party could suggest either that a CB or part of a CB be changed 1) from not-LTE-covered (i.e., MFII eligible) to LTE-covered (not MFII eligible) or 2) from LTE-covered to not-LTE-covered.
2. Data improvement submissions would be filed in the public record, with parties able to request confidential information for certain information. The FCC would announce in advance of the process what information parties may file confidentially.
3. A “covered” area would be defined as a CB or partial CB that has average outdoor wireless LTE download speed of at least 5Mbps as measured on or before the start date of the improvement process using FCC-specified testing procedures (see Section D, below).
4. Results of predictive models are only eligible for submission to meet the map requirements. Data submitted to verify coverage download speed must be collected on-site in the CB or partial CBs where the coverage status is being questioned or verified. Failure to comply with the FCC-specified procedures would disqualify a submission from consideration.
5. Parties would be able to notify the FCC of current construction or future plans to cover an area but such notice would not result in an adjustment to the coverage data unless specific evidence to be determined by the FCC, beyond a certification, is provided.
6. Service providers and governmental entities located in or near the relevant CBs or census tracts would be eligible to participate in the data improvement process. Individual consumers would not be eligible to participate directly but could contact their local government entities about submitting evidence.
7. Responses to the initial improvement submissions would be due 30 days from the initial deadline (i.e., 90-days from the start of the process). These responses would also be required to conform to the FCC-specified testing procedures and submission formats.

D. Detailed Specifications Promote Fairness & Efficiency

A fair and efficient data improvement process starts with detailed FCC data submission specifications that all parties can and must follow. We propose the following specifications:

1. Parties making initial submissions to the data improvement process must follow the data requirements set out in D.4 and D.5, below. Submissions that do not contain the required pieces of evidence in the appropriate format will not be considered. No other information should be submitted and would not be considered. The truth and accuracy of all submissions must be certified under penalty of perjury.
2. A party responding to an initial submission that is attempting to prove an area is LTE-covered (see D.4) must submit the same data that is required for a party attempting to prove that LTE service does not exist (D.5). Likewise, a party responding to an initial submission that is attempting to prove an area has no LTE service (D.5) must submit the evidence required to prove that LTE service exists (D.4). Submissions that do not contain the required pieces of evidence in the appropriate format will not be considered. No other information should be submitted and would not be considered. The truth and accuracy of all submissions must be certified under penalty of perjury.
3. Participants must provide census tract speed test results in order to verify required LTE service level coverage or lack thereof. The required information may be compiled using any industry accepted speed measurement practice including device-based speed-test applications or drive tests, but in any event must reflect the speed on the ground and provide the required data. For parties choosing to do drive tests, the FCC should establish the specific drive testing protocols in advance of the data improvement process. For parties choosing to do application-based tests, the FCC should recommend or require a specific speed test app for device-based testing (i.e., Ookla Speedtest) to promote consistency. Census Bureau online resources are available to assist participants with identifying census block information and the FCC could request test validation information if necessary such as that provided by the Speedtest app (see Attachment A).
4. Evidence required to prove a CB is LTE-covered: A party identifying that a CB or partial CB shown in the Form 477 Data as not-covered by LTE service, is in fact covered must present to the FCC two pieces of evidence:
 - a. Map in shapefile format displaying signal coverage and transmitter site(s) in relation to the CB(s) in question following the specifications in Appendix X (which will establish consistent requirements for shapefiles),

and
 - b. Proof of coverage, either as

- i. Measured download speed test data conforming to the speed test specifications in section D.3., above, taken from at least three different locations within each CB or partial CB. Each test location must be at least a quarter mile from another test location unless the CB size or terrain preclude it (proof of need for this exception must be provided). Date of test and GPS coordinates for each test location must be provided. To perform a test, five download speed readings should be recorded over a ten-minute period at each location. The highest and lowest readings are discarded and an average for that location calculated from the remaining three readings. This average is the test result for that location. All three (or more) locations must record an average download speed of at least 5Mbps in order to support the presence of LTE service,

or

- ii. Transmitter traffic data reports or maps that record at least three actual radio measurements for LTE devices within the CBs in question that indicate an average download speed of at least 5Mbps. The date and GPS coordinates for each test location must be provided.

5. Evidence required to prove a CB is not covered by LTE: A party identifying that a CB or partial CB shown in the Form 477 Data as having LTE coverage is in fact not covered must present to the FCC (and serve on the carrier(s) shown as providing coverage in the area in question) two pieces of evidence:

- a. Map of the CB(s) or partial CB(s) indicating the location of each test and the address and/or GPS coordinates for the test locations. Maps may be submitted in any format although electronic formats, such as shapefiles are preferred,

and

- b. Proof of lack of coverage, as

- i. Measured download speed test data conforming to the speed test specifications in section D.3., above, taken for each of the wireless carriers reporting Form 477 Data that claims LTE coverage for the area in question. Test data for each carrier must be taken from at least three different locations within each CB. Each test location must be at least a quarter mile from another test location. The testing date and GPS coordinates for each test location must be provided. To perform a test, five download speed readings should be recorded over a ten-minute period at each location for each carrier. The highest and lowest readings for each carrier are discarded and an average for that location for each carrier is calculated from the remaining three readings. An average available download speed of less than 5Mbps indicates that a carrier's coverage does not meet the LTE MFII standard at that

location. If no signal is available at the location, record that as the test result,

or

- ii. Drive test data from drive tests conforming to the standards discussed in section D.3., above.

6. Submission of consistent data should allow the FCC to quickly decide whether or not to add or remove square miles from the MF II eligible list.

- a. If no responses to the initial submissions are filed, the FCC would make the suggested adjustment to the coverage data if the initial submission satisfies the evidentiary requirements.
- b. If responses are submitted, and both satisfy the evidentiary requirements, the FCC would have to weigh the evidence presented by both parties and determine whether or how much of a change in the Form 477-based coverage data is warranted.
- c. At the end of the data improvement process, the FCC would issue a final list of CBs and partial CBs determined to lack the required level of LTE coverage and the census tracts in which these uncovered areas are located.

E. MF II Service & Deployment Obligations

All obligations required of MF II winners must be clearly known before the auction occurs and should not change or evolve over the course of the program term. The auction's success depends upon all participants knowing exactly what will be expected of them when they bid.

1. Service Requirements

- a. MF II winners would be required to deploy and maintain a mobile wireless network capable of providing LTE coverage of at least 5Mbps average download speed over the required number of eligible square miles in the eligible CB(s) and partial CB(s) in a census tract.
- b. MFII support is intended to be used for both capital expenditures and ongoing cost of providing service.
- c. Compliance with the service and deployment requirements would be assessed at a census tract level.
- d. Service plans and pricing in MFII areas should be reasonably comparable to service plans/prices offered in urban areas.

2. Deployment

- a. The final list of CBs/Census Tracts eligible for MFII should identify: a) CBs and partial CBs within the census tract that have been determined to be LTE-uncovered, b) the square miles of LTE uncovered area in each CB/partial CB within the tract, and c) the total square mile "Coverage Area Requirement" for each census tract.
 - The Coverage Area Requirement is the number of squares miles that represents XX% of the total LTE-uncovered square miles in the census tract and is a unique number for each census tract.
- b. If in the course of meeting its MF II deployment obligations, a carrier provides LTE to areas outside of the MFII eligible CBs/census tracts those areas may not be counted towards its Coverage Area Requirement and no additional funding will be provided for these areas.
- c. MF II deployment milestones will be over six years and consistent with 54.310(c) except that each milestone would be defined by the percent of the Coverage Area Requirement to be covered by the end of each year.
 - For example, if a participant wins a census tract with an eligible square mile total of 500 square miles the Coverage Area Requirement (assuming an 80% requirement) would be 400 square miles. At the end of year three the participant would be expected to have deployed to 40% of its requirement or to 160 square miles of the eligible area in that census tract.

3. Reporting & Compliance

- a. Progress towards meeting the Coverage Area Requirement would be measured and reported at the census tract level. That is, winners must cover XX% of the combined area of the eligible CBs within the census tract, not XX% of the eligible area in each CB within the tract. The self-effectuating deployment compliance framework established in 54.320(d) will apply to MFII (modified as necessary for mobile coverage).
- b. All MF II participants would have to report annually on their progress towards deployment by reporting new areas covered by LTE via established CAF reporting methods modified as needed for the MFII square mile/census tract format.
- c. In addition, at the end of the third and sixth years (at 40% and 100% deployment) for every census tract in which they receive MFII support the participant must submit two pieces of information in order to: i) indicate where LTE has been deployed; and ii) to verify that the required LTE service level has been deployed. No other information should be required to prove or certify to compliance with MFII rules unless expressly allowed by the FCC.
 - i. Maps in shapefile format displaying signal coverage and transmitter site(s) in relation to the CBs in question. (Conforming to same standards set for the data improvement process.)

and

- ii. Participants must provide, and certify to the accuracy of, census tract speed test results in order to verify required LTE service level coverage. The required information may be compiled using any industry accepted speed measurement methodology but must reflect the speed on the ground (i.e., results of predictive models are not allowed except for generating maps). A carrier may also use transmitter traffic monitoring data (reports or maps) as long as a census tract average (based on CB-level results) is provided.
 - The average download speed of all the eligible areas within a census tract. This average download speed must be at least 5Mbps to be in compliance with MFII rules. Measurements must be taken in each eligible CB or partial CB and the CB-level results averaged to reach a census tract average download speed figure. The CB testing must follow the specifications established for the data improvement process.

Census Bureau TIGERweb Mapping Tool

Using the Census Bureau's [TIGERweb](https://tigerweb.geo.census.gov/tigerweb2010/) mapping tool, users can input an address (commercial or residential) and identify which census block (CB) the address is in as well as view the boundaries of surrounding CBs, roads, and highways for points of reference. There are two methods for searching an address to determine which CB it is in:

1. If you have the address. To input an address and view which CB the address is in, users must:
 - a. Visit <https://tigerweb.geo.census.gov/tigerweb2010/>.
 - b. In the upper-right search bar that reads "Street, City, State, Zip", input the address using the required information.
 - c. The map will populate to the exact state and county in which the address is located. In the upper-left portion of the page, click on "Layers".
 - d. Once "Layers" is selected, check the boxes for "Labels," "Transportation (Roads and Railroads)", "Census Tracts and Blocks", and "Hydrography."
 - e. An optional step for a clearer map of the census block boundaries would be to click the "+" box next to "Census Tracts and Blocks" to expand the category and ensure that only "Census Blocks" is selected. This will eliminate lines on the map associated with census tracts and census block groups, so that only CB numbers and boundaries are visible, along with roads and highways.

After following these steps, the user should see a blue dot identifying the precise location of the searched address and a map of the CB boundaries to help recognize which CB the address is in.

2. If you do not have an address or the address cannot be found by TIGERweb. If the user does not have an address to input or the address could not be found by the TIGERweb mapping tool, users may approximate the location of the address to determine the CB the address is in by following the steps below:
 - a. Visit <https://tigerweb.geo.census.gov/tigerweb2010/>.
 - b. Using the zoom feature at the upper-left side of the map, zoom into the particular state the address is located in. From here, zoom further into the county the address is located in.
 - c. In the upper left hand portion of the page, click on "Layers".
 - d. Once "Layers" is selected, check the boxes for "Labels," "Transportation (Roads and Railroads)", "Census Tracts and Blocks", and "Hydrography."
 - e. An optional step for a clearer map of the census block boundaries would be to click the "+" box next to "Census Tracts and Blocks" to expand the category and ensure that only "Census Blocks" is selected. This will eliminate lines on the map associated with census tracts and census block groups, so that only CB numbers and boundaries are visible, along with roads and highways.

After following these steps, the user should be able to use the roads and highways identified on the map of the county to identify the approximate location of the address and, thus, the CB that the address is in.

Ookla Speed Testing App

The Ookla Speedtest app provides detailed information regarding when and where the test took place. Upon completion of a speed test using the Ookla app, results become readily accessible via the app and may be easily shared or distributed via email. Importantly, the data collected with each Ookla speed test includes the test date and time, download and upload speeds, and the latitude and longitude coordinates of where the test took place. Additionally, Ookla will offer a Google maps link showing the precise location of where the speed test was conducted. Finally, Ookla can identify the type of device the test was conducted on (i.e. iPhone 6) and the service provider that the phone was using. Two examples of Ookla speed tests and the data that can be shared are shown below.

Example 1:

A detailed image for this result can be found here: <http://www.speedtest.net/my-result/i/1949776459>

Test Date: Jan 25, 2017 2:48 PM
Download: 35.19 Mbps
Upload: 16.75 Mbps
Ping: 34 ms
Connection Type: Cellular
Server: Washington, DC
External IP: 107.77.202.196
Internal IP: 10.20.171.231
Latitude: 38.9066
Longitude: -77.0485
<http://maps.google.com/maps?f=q&q=38.906615,-77.048532>

Example 2:

A detailed image for this result can be found here: <http://www.speedtest.net/my-result/i/1950754934>

Test Date: Jan 26, 2017 9:29 AM
Download: 28.04 Mbps
Upload: 2.02 Mbps
Ping: 25 ms
Connection Type: Cellular
Server: Arlington, VA
External IP: 107.77.204.77
Internal IP: 10.109.60.105
Latitude: 38.8836
Longitude: -77.2291
<http://maps.google.com/maps?f=q&q=38.883627,-77.229087>